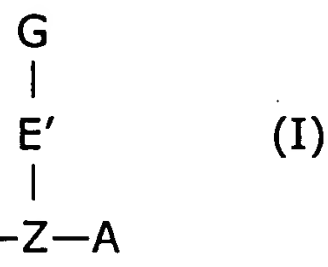
IN THE CLAIMS:

Please cancel claims 14-32 without prejudice or disclaimer, and add new claims 33-50, as shown below in the detailed listing of all claims which were, or are, in the application:

Claims 1-32 (Canceled)

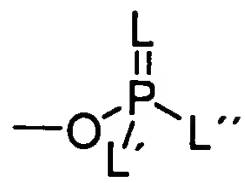
33. (New) A labeling reactant of formula (I) suitable for labeling an oligonucleotide



(I)

wherein

R is a protecting group or is not present;

A is either a phosphorylating moiety  where

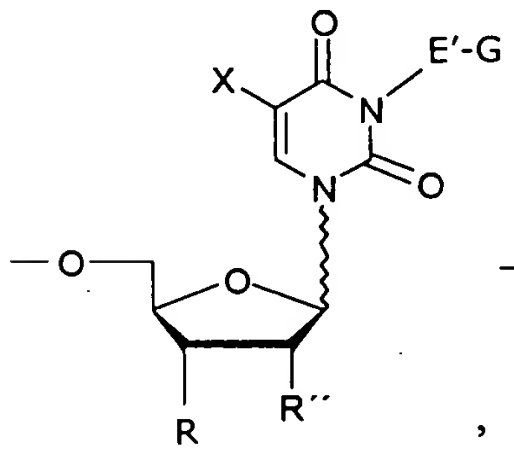
L is O, S, or is not present

L′ is H, L‴CH_2CH_2CN or L‴Ar, where Ar is phenyl or its substituted derivative, where the substituent is nitro or chlorine, and L‴ is O or S;

L″ is O^-, S^-, Cl, $N(i\text{-}Pr)_2$; or

A is a solid support tethered to **Z** via a linker arm, which is formed of one to ten moieties, each moiety being selected from a group consisting of phenylene, alkylene containing 1-12 carbon atoms, ethynediyl, ether, thioether, amide, carbonyl, ester, disulfide, diaza, and tertiary amine;

Z is a bridge point and is formed from



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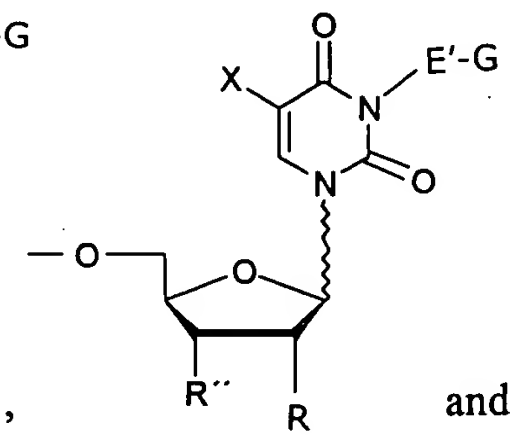

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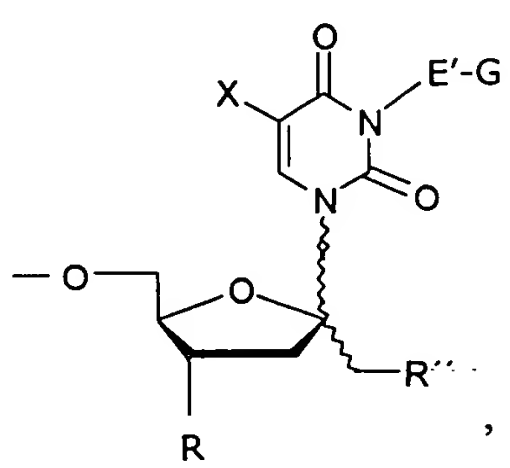


,

where

R′′ is H or X′X″, where

X′ is -O-, -S-, -N-, ON- or -NH- and X″ is a protection group

or

X′ is -O- and X″ is alkyl or alkoxyalkyl;

X is H, alkyl, alkynyl, allyl, Cl, Br, I, F, S, O, $NHCOCH(CH_3)_2$, $NHCOCH_3$, NHCOPh, SPh_3, $OCOCH_3$ or OCOPh;

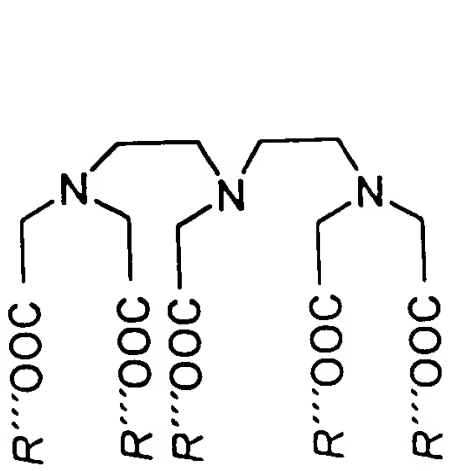
E´ is a linker arm between **G** and **Z**, bonded to Z at nitrogen in the pyrimidyl ring and is formed of one to ten moieties, each moiety being selected from the group consisting of phenylene, alkylene containing 1-12 carbon atoms, ethynediyl, ether, thioether, amide, carbonyl, ester, disulfide, diaza, and tertiary amine, or is not present;

G is a bivalent aromatic structure, tethered to two iminodiacetic acid ester groups $N(CH_2COOR''')_2$ where

R''' is an alkyl of 1 to 4 carbon atoms, allyl, ethyltrimethylsilyl, phenyl or benzyl, and

said bivalent aromatic structure is capable of absorbing light or energy and transferring the excitation energy to a lanthanide ion after the solid phase synthesis made labeling reactant has been released from the used solid support, deprotected and converted to a lanthanide chelate, or

G is a structure selected from a group consisting of



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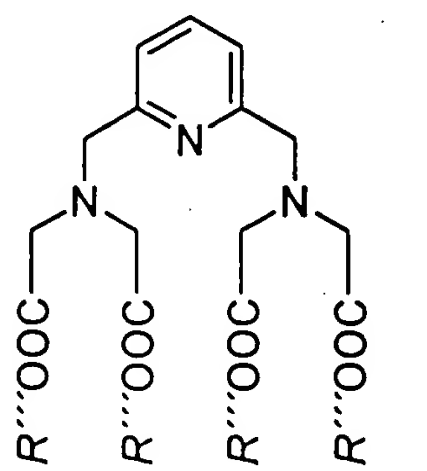

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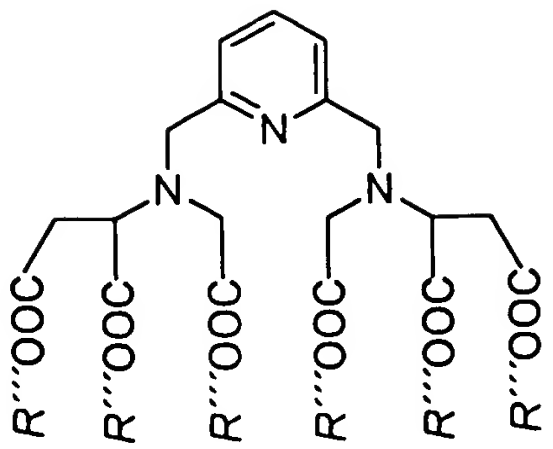

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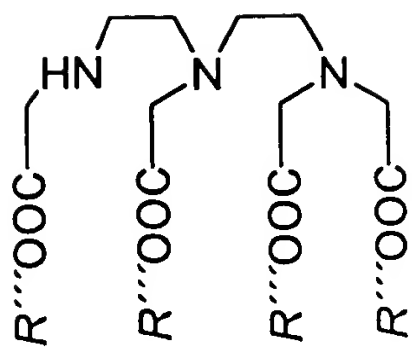


,

where

R''' is an alkyl of 1 to 4 carbon atoms, allyl, ethyltrimethylsilyl, phenyl or benzyl, and

one of the hydrogen atoms is substituted with E′, or

G is a protected functional group, where the functional group is amino, aminooxy, carboxyl, thiol, and the protecting group is pthaloyl, trityl, 2-(4-nitrophenylsulfonyl)ethoxycarbonyl, fluorenylmethyloxycarbonyl, benzyloxycarbonyl, trifluoroacetyl or *t*-butoxycarbonyl for amino and aminooxy, alkyl for carbonyl and alkyl or trityl for thiol.

34. (New) The labeling reactant of claim 33, wherein **R** is a member of the group consisting of 4,4′dimethoxytrityl, 4-methoxytrityl, trityl, and (9-phenyl)xanthen-9-yl.

35. (New) The labeling reactant of claim 33, wherein X" is a member of the group consisting of *t*-butyldimethylsilyl-, tetrahydropyranyl, 1-(2-fluorophenyl)-4-methoxypiperidin-4-yl-, 1-[2-chloro-4-methyl)phenyl]-4-metoxypiperidin-4-yl-, 4-methoxytetrahydropyran-4-yl-, phthaloyl-, acetyl, pivaloyl-, benzoyl-, 4-methylbenzoyl, benzyl-, and trityl.

36. (New) The labeling reactant of claim 33, wherein **G** is a protected functional group.

37. (New) The labeling reactant of claim 36, wherein said protected functional group is selected from the group consisting of amino, carboxyl, aminooxy and thiol.

38. (New) The labeling reactant of claim 33, wherein **G** is an organic dye.

39. (New) The labeling reactant of claim 38, wherein said organic dye is selected from the group consisting of dabsyl, dansyl, fluorescein, rhodamine and tetramethyl-6-carboxyrhodamine (TAMRA).

40. (New) The labeling reactant of claim 33, wherein the temporary protecting group **R** is 4,4'-dimethoxytrityl.

41. (New) The labeling reactant of claim 33, wherein said reactant is a nucleotide and the sugar of the nucleotide is 2-deoxyribose or 3-deoxyribose.

42. (New) The labeling reactant of claim 41, wherein X′ is hydroxyl.

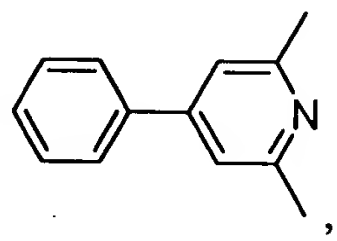
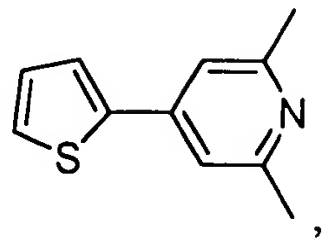
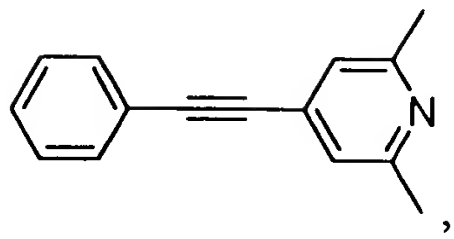
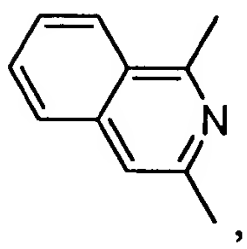
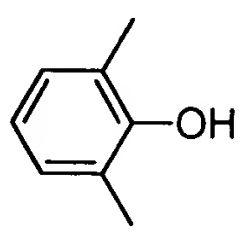
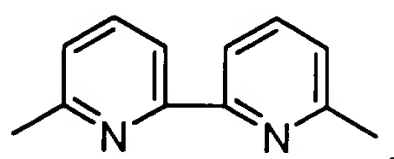
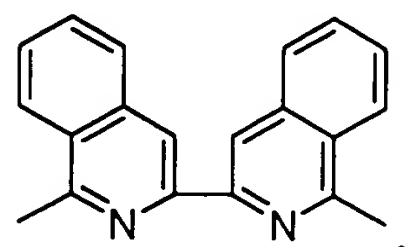
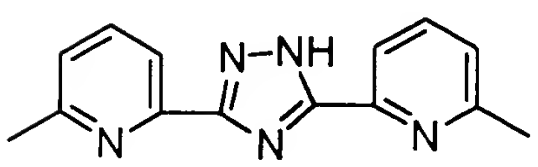
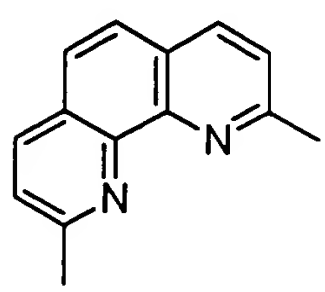
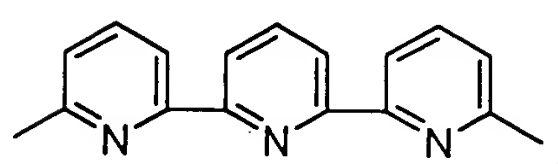
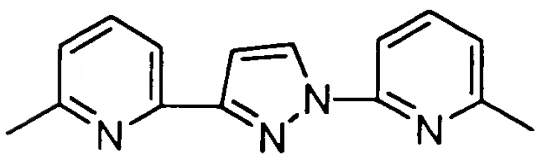
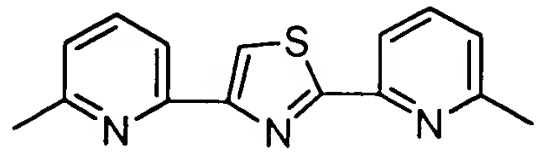
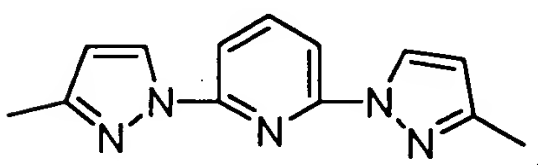
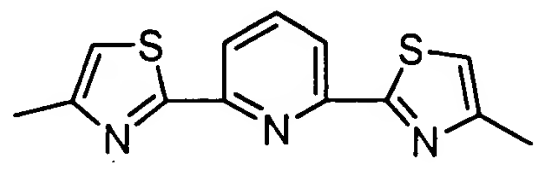
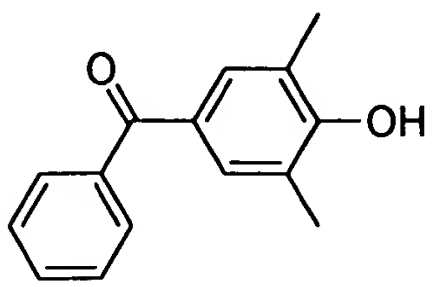
43. (New) The labeling reactant of claim 42, wherein the permanent protection group X″ of X′ is selected from the group consisting of *t*-butyldimethylsilyl, tetrahydropyranyl, 1-(2-fluorophenyl)-4-methoxypiperidin-4-yl-, 1-[2-chloro-4-methyl)phenyl]-4-methoxypiperidin-4-yl- and 4-methoxytetrahydropyran-4-yl-.

44. (New) The labeling reactant of claim 41, wherein X″ is an alkyl or alkoxyalkyl.

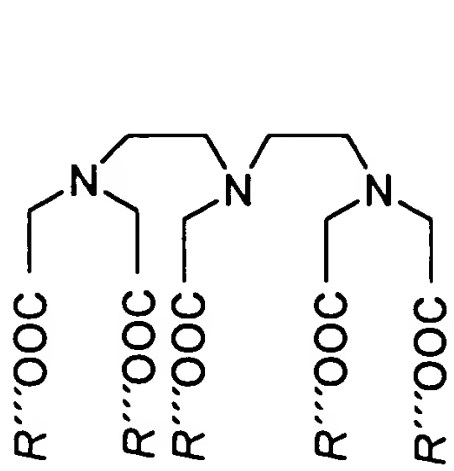
45. (New) The labeling reactant of claim 44, wherein X″ is selected from the group consisting of methyl, methoxymethyl and ethoxymethyl.

46. (New) The labeling reactant of claim 33, wherein **G** is a bivalent aromatic structure.

47. (New) The labeling reactant of claim 46, wherein **G** is selected from the group consisting of

carbostyryl,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  , and  .

48. (New) The labeling reactant of claim 33, wherein said reactant is non-luminescent and **G** is selected from a group consisting of



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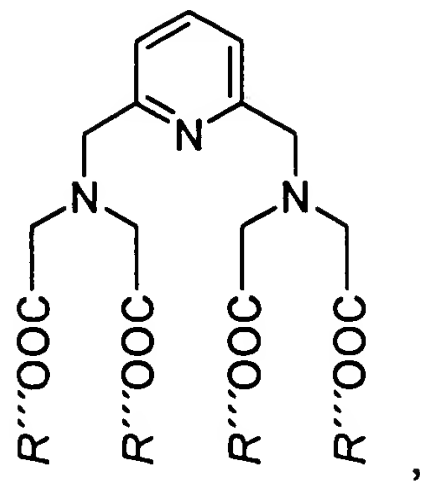

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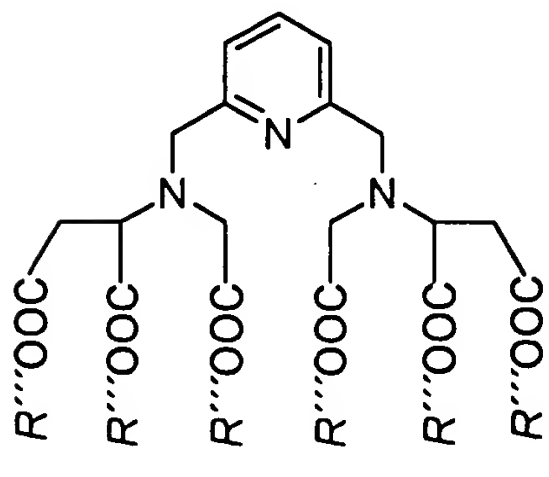

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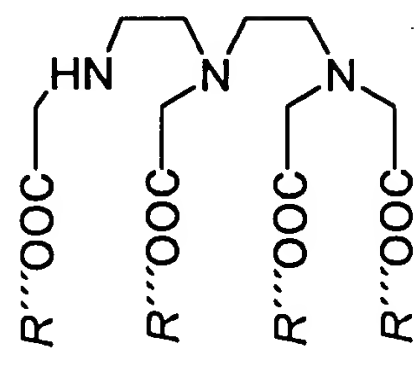

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and wherein

R''' is an alkyl of 1 to 4 carbon atoms, allyl, ethyltrimethylsilyl, phenyl or benzyl, which phenyl or benzyl can be substituted or unsubstituted, and one of the hydrogen atoms is substituted with E′.

49. (New) The labeling reactant of claim 48, wherein R''' is selected from the group consisting of methyl, ethyl and allyl.

50. (New) The labeling reactant of claim 33, wherein the labeling reactant is selected from the group consisting of

2′-deoxy-5′-*O*-(4,4′-dimethoxytrityl)-*N3* {tetramethyl 2,2′,2″,2″′-[(4-(1-hexyn-5-yl)pyridine-2,6-diyl) bis(methylennenitrilo)}tetrakis(acetato) uridine 3′-*O*-(2-cyanoethyl *N,N*-diisopropyl) phosphoramidite,

*N*3-[6-[4-(dimethylamino)azobenzene-4′-sulfonamido]hex-1-yl-5′-*O*-(4,4′-dimethoxytrityl)thymidine 3′-*O*-(2-cyanoethyl *N,N*-diisopropyl) phosphoramidite,

5′-*O*-(4,4′-dimethoxytrityl)-*N3*-{tetramethyl-2,2′,2″,2″′-{6,6′-[4′-hydroxyethoxyethoxyphenylethynyl]pyridine-2,6-diyl}bis(methylenenitrilo)tetrakis(acetato)}thymidine3′-*O*-(2-cyanoethyl *N,N*-diisopropyl) phosphoramidite, and

2′-deoxy-5′-*O*-(4,4′-dimethoxytrityl)-3-6-{{4-{6,6″-bis[N,N-bis(methoxycarbonylmethyl)aminomethyl]-2,2′:6′,2″-terpyridine-4′-yl}phenyl}hex-5-yn-1-yl}uridine 3′-[*O*-(2-cyanoethyl)-N,N-diisopropyl]phosphoramidite.